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09/327,713

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KIMIHIKO NISHIOKA

PM260332

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04/19/2005

PILLSBURY WINTHROP SHAW PITTMAN, LLP

P.O. BOX 10500

MCLEAN, VA 22102

EXAMINER

PARKER, KENNETH

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/327,713

Applicant(s)

NISHIOKA, KIMIHIKO

Examiner

Kenneth A. Parker

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43, 45 and 48-91 is/are pending in the application.  
 4a) Of the above claim(s) 1-36, 45, 50-76, 79-83 is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 37-43, 48, 49, 77, 78 and 84-91 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 1/10/05  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 37-40, 87-88, 90-91 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The language “***are arranged to be decentered***” is indefinite, as there is no way to determine what limitations would read on this. The examiner is assuming that it is implying it that the elements listed are arranged so that one of the reflections is an off axis reflection, and has examined accordingly.

The language “**the variable optical-property elements form no array**” is indefinite, as the statement itself has no clear meaning, as array has multiple meaning, which is implied here is unclear (see below), and as it is unclear if it means the sub elements of the listed elements are not in a matrix form, or whether the element listed is in itself not part of a larger matrix. For examining purposes, it is assumed that the meaning of array is essentially definition 4 below, and that the element of the claim is either not part of a large matrix of regularly spaced and positioned elements, or it itself does not have regularly spaced and positioned elements.

**5 entries found for *array*.**

ar·ray  **Pronunciation Key** (ə-ˈrā)  
tr.v. ar·rayed, ar·ray·ing, ar·rays

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1. To set out for display or use; place in an orderly arrangement: *arrayed the whole regiment on the parade ground.*
2. To dress in finery; adorn.

*n.*

1. An orderly, often imposing arrangement: *an array of royal jewels.*
2. An impressively large number, as of persons or objects: *an array of heavily armed troops; an array of spare parts.* See Synonyms at display.
3. Splendid attire; finery.
4. Mathematics.
  - a. A rectangular arrangement of quantities in rows and columns, as in a matrix.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by**

***Smither 5004319.***

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Regarding claim 37 the reference shows in figure 1, 5a or b and 9 a variable optical-property mirror unit comprising (the device interacts with photons in a reflective manner): a variable optical-property mirror 71 comprising a rotationally asymmetric reflecting surface (the top), which has a length thereof along a first direction being different from a length thereof along a second direction and is therefore not symmetric on a 90 degree rotation (rotationally symmetric is taken as no change under any rotation; i.e. circular); and a driving circuit constructed and arranged to drive the variable optical-property mirror, wherein the variable optical-property mirror is **arranged to be decentered**, wherein the variable optical-property mirror itself is made physically changeable by the driving circuit (the computer shown as 124 is indicated as controlling the elements of the driving matrix of thin film resistors by electrical elements, and hence must inherently be a drive circuit), and wherein the reflecting surface of the **variable optical-property mirror contributes to forming a two-dimensional image (the relationship "contributes" is intended use and further only requires tangential association with the forming of a two dimensional image, and as it therefore met by essentially anything. Here one could use the device to create a two dimensional image of the diffracted photons.**

Regarding claim 38, the reference shows the variable optical-property mirror according to claim 37, wherein a shape of the reflecting surface of said variable optical-property mirror unit is variable, as the shape is indicated as changing (see column 2, lines 39-50).

Regarding claim 39 the reference shows a variable optical-property mirror unit according to claim 37, wherein the light deflection property of said rejecting surface is rotationally asymmetric (the reflection is focus differently in both 90 degree rotation as the radius of curvature shown is different).

**Claims 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Gelbart 6147789.**

Regarding claim 40 the reference shows an optical apparatus comprising:  
a variable optical-property mirror having a reflecting surface 2, a length thereof along a first direction being longer than a length thereof along a second direction (any of the elements in figure 2, or the combination of those elements,  
wherein *the variable optical-property mirror is arranged to be decentered (it is shown decentered)*, wherein the variable optical-property mirror itself is physically changeable (it bends) and *wherein the reflecting surface of the variable optical-property mirror contributes to forming a two-dimensional image* (the language is intended use and would be met without explicit mention, but here the use is mentioned in column 4, lines 5-11; additionally, the language "contributes to" enables any level of contribution to the image to meet the language, no matter how tangential)

**Claims 41-43, 48-49, 87 and 90 are rejected under 35 U.S.C. 102(b) as being anticipated by Koyama et al 5793473.**

Regarding claim 41, the reference shows an optical device comprising:  
a variable optical-property element (figure 4, element 8); and an optical element having a plurality of rotationally asymmetric surfaces (element 7, both sides), wherein the variable optical-property element itself is physically changeable (DMD devices are physically change in that they deform) and wherein ***the variable optical-property element contributes to forming a two-dimensional image*** (the device is a projector-see summary of invention column 1, lines 60-69 and throughout).

The reference further discloses the device of claim 42, which is an optical device according to claim 41, further comprising an image sensor. Here the photo resist is construed as an image sensor, in that a sensor is anything that responds to a given stimulus, not necessarily electronically. Photo resist does nothing but polymerize according to an image, and therefore clearly can be construed as an image detector. As the language here of column 1 lines 20-30, that the exposure device is to put a pattern in a photoresist on the wafers, the reference is viewed as giving explicit fruition to each embodiment having photoresist on the wafer.

Regarding claim 43, the reference shows an optical system, consisting of:  
a rotationally asymmetric surface 7 and a variable optical-property mirror 8 which is itself is physically changeable .

The reference further discloses the device of claim 48, which is an optical device according to 41, wherein each of said variable optical-property mirror and an image sensor is disposed on a surface of said optical element with a plurality of rotationally asymmetric surfaces. Here the photo resist is construed as an image sensor, in that a sensor is anything that responds to a given stimulus, not necessarily electronically. Photo resist does nothing but polymerize according to an image, and therefore clearly can be construed as an image detector. As the language here of column 1 lines 20-30, that the exposure device is to put a pattern in a photoresist on the wafers, the reference is viewed as giving explicit fruition to each embodiment having photoresist on the wafer. As the wafers are element 7, which is the element illustrated as having non-rotationally symmetric surfaces, this claim is met by the reference.

Regarding claim 49, the reference shows an optical system comprising:  
a variable optical-property mirror which is physically changeable figure 6-element 20;  
and an optical element disposed at the front side or the back side which has a rotationally asymmetric surface 7 having a shape that defines only one plane of symmetry or no plane of symmetry (one of the two 90 degree directions is not symmetrical, the only possible symmetry is the other that faces across the page).

Regarding claim 90, the reference shows an optical system comprising:  
a variable optical-property mirror which is physically changeable 20; and an optical element with a rotationally asymmetric surface 7 arranged in at least in one of a position



in front of the variable optical-property mirror and a position behind the variable optical-property mirror, **and wherein the variable optical-property mirror forms no array** (the mirror is not shown as sub divided).

Regarding claim 87, the reference shows an optical device comprising: a variable optical-property element 20 which is physically changeable, and an optical element having a plurality of rotationally asymmetric surfaces (7 - both sides are asymmetric – the front and the back),

**Claims 77-78 and 91 are rejected under 35 U.S.C. 102(b) as being anticipated by Pepper 5046824.**

The reference shows regarding claim 77 all of the elements of the reference including an optical apparatus, comprising an optical element (the optical relay); and a plurality of variable optical-property elements (2,8 and 14- liquid crystal devices are physically changeable in that the state is changed through the movement of molecules ), wherein the variable optical-property elements are ***arranged to be decentered (the reflection is not down the center axis)*** wherein the ***variable optical-property elements themselves are physically changeable*** and ***wherein the variable optical-property elements contribute to forming a two-dimensional image (this limitation is only intended use and is met by anything that can be used at least tangentially in forming an image. As an image imaging is indicated in figure 3, this***

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***unabiguously can be used in such a manner as the elements are used in such a manner.***

The reference shows regarding claim 78 an optical apparatus according to claim 77, further comprising an image sensor (element 96 is a detector, which is interpreted to be an image sensor in accordance with column 2, lines 61-65 "the output image received by the detector". Further, any of the photoconductors of the light valves can be construed as image detectors, in that they inherently produce a voltage response in each point in the image).

The reference show regarding claim 91 including an optical apparatus comprising: an optical element 34, and a plurality of variable optical-property elements which are physically changeable (2, 8 and 14), wherein the variable optical-property elements are arranged to be decentered (the reflection is off center axis), and wherein the variable optical-property elements form no array (they are not immediately along side of each other in a matrix form).

**Claims 84-85 and 88 are rejected under 35 U.S.C. 102(b) as being anticipated by Molstrom 3923370.**

Regarding claim 84, the reference shows an optical device comprising: a physically changable variable optical-property element (the human eye 82 is a physically changeable optical element, in the the human lens varies and the eyeball can move), and a rotationally asymmetric reflecting surface (mirror 30 is described as parabolic, and as illustrated doesn't include the apex in the center, so is asymmetric),

and wherein the variable optical-property element and the rotationally asymmetric reflecting surface ***are arranged to be decentered from one another (the reflection off mirror 30 is decentered).***

Regarding claim 85, the reference shows an optical device according to claim 84, wherein the rotationally asymmetric reflecting surface defines only one plane of symmetry or no plane of symmetry (since the side view shows no rotational plane of symmetry, only the other plane can be a plane of symmetry)

Regarding claim 88, the reference shows an optical apparatus comprising a variable optical-property element (the eye), an optical element having a rotationally asymmetric reflecting surface (the mirror 30, ***wherein the rotationally asymmetric reflecting surface is arranged to be decentered (the mirror 30 is used in a decentered reflection), wherein the variable optical-property element itself is physically changeable (an eye has a variable lens, and wherein the rotationally asymmetric reflecting surface forms no array (there is no regular set of asymmetric surfaces shown).***

**Claims 41, 43, 84, 86 and 88 are rejected under 35 U.S.C. 102(b) as being anticipated by Rambauske 3950079.**

Regarding claim 84, the reference shows an optical device comprising: a physically changable variable optical-property element 14 (elements 12,14,16 and 18 are mirrors which rotate, 12 and 14 relative to each other and therefore any of them can be considered physically variable in respect to the other) and a rotationally asymmetric

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reflecting surface 12 (it's hyperbolic, see fig 2), and wherein the variable optical-property element and the rotationally asymmetric reflecting surface ***are arranged to be decentered from one another*** (all the reflections are non central axis- see figure 2).

Regarding claim 86 the reference shows an optical device according to claim 84, wherein the variable optical-property element is a reflection-type element – the element is a reflector.

Regarding claim 88, the reference shows an optical apparatus comprising a variable optical-property element the rotatable mirror 14, an optical element having a rotationally asymmetric reflecting surface (the mirror 12), ***wherein the rotationally asymmetric reflecting surface is arranged to be decentered (the mirrors are used in off axis), wherein the variable optical-property element itself is physically changeable (motion or movement is physical change) and wherein the rotationally asymmetric reflecting surface forms no array (there is no regular set of asymmetric surfaces shown).***

Regarding claim 43, the reference shows an optical system, consisting of: a rotationally asymmetric surface 12 and a variable optical-property mirror 14 which is itself is physically changeable (see discussion above regarding physical changability).

Regarding claim 41, the reference shows an optical device comprising: a variable optical-property element 14 as per discussion above; and an optical element having a plurality of rotationally asymmetric surfaces (element 12, both sides), wherein

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the variable optical-property element itself is physically changable (it moves) and wherein ***the variable optical-property element contributes to forming a two-dimensional image*** (an intended use limitation which is met by anything that can contribute to forming a two dimensional image, not matter how tangential the contribution is. Here the use is for steering a laser, and as the laser can be steered to form an image, the intended use limitation is met).

### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not


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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A. Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kenneth A Parker  
Primary Examiner  
Art Unit 2871